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AUTHOR Peck, Johanne; Goldman, Richard
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ABSTRACT

This paper reports a pilot study of ecological variables in a kindergarten play area. Behaviors in ten complex categories were recorded for all children present in the area. The level of experimental control was similar to the level of control that the teacher would have in the manipulation of the normal classroom environment. Subjects were 20 kindergarten children attending a university laboratory school. Eight 20-minute segments of "worktime" were videotaped on eight consecutive school days. For the first four days a large multi-level box-like structure was placed in the area. For the final four days poles and panels of fabric which could be fit onto the structure in a variety of ways were added to the area. Children could choose this or other activity areas. Ten categories of behavior were defined. Tapes of children were viewed and behaviors in the ten categories were recorded for each 5-second interval for each child. Results indicated that the complexity of the play structure alone did not account for variations in behaviors during the period. The social density of the area was related to increases in imaginative play and to a higher level of noninteraction, but not to an increase in aggression. Girls showed the same behavior patterns as boys during their time on the play structure but showed different usage levels. (SB)

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The Behaviors of Kindergarten Children Under Selected Conditions in the Social and Physical Environment

Johanne Peck
Kent State University

Richard Goldman
Nova University

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A total of 20 kindergarten children were videotaped in their classroom while they interacted with a play structure and each other on eight consecutive school days. The complexity of the play structure alone did not account for variations in behaviors during the period. The social density of the area was related to increases in imaginative play and to a higher level of non-interaction, but not to an increase in aggression. Girls showed the same behavior patterns as boys during their time on the play structure, but showed different usage levels.

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Early childhood educators traditionally arrange areas and activities in classrooms in ways that they feel will encourage desired behaviors and experiences. A teacher, for instance, might wish to encourage imaginative play as opposed to motor exploration in a given area. Such arrangements are generally arrived at by intuition and by practical considerations. There is very little research available that provides guidelines for the teacher organizing her classroom. The literature on observation of classroom behavior (Medley and Mitzel, 1963; Gordon and Jester, 1973; Rosenshine and Furst, 1973) provides little information about the impact of the physical and social climate of the classroom. Gordon and Jester state that while "many researchers in the observation of classroom behavior at the school level have included information about the physical arrangements, these data do not seem to be used to the fullest extent as a part of the basic analysis...We have only the grossest indications about the many ecological factors present in the preschool classroom" (p. 206). Available studies of the ecological variables present in the preschool classroom tend to fall into two general classes, those which are conducted under conditions of experimental control, with the focus on specific variables and the elimination of all extraneous factors, and those which follow the tradition of ecological psychology as defined by Barker (1965) in which the experimenter serves as observer of naturally occuring events, and obtrudes as minimally as possible upon ongoing behaviors.

Experimental Studies

In the experimental tradition one finds two groups of studies that have implications for children's patterns of behavior under differing conditions in the physical and social milieu: studies of stimulus complexity and studies of the impact of social and spatial crowding. The first of these areas provides some indications of the differential response that might occur in settings involving varying degrees of complexity and the second suggests some broad, general interaction patterns that might be expected by age and sex under varying densities.

Stimulus Complexity

Researchers following Berlyne's (1960) hypothesis about the arousal properties of complex stimuli have identified the following patterns in children. Children prefer nonfamiliar stimuli over familiar stimuli (Cantor, 1968; Cantor and Kubose, 1969), and this preference for nonfamiliar stimuli remains consistent regardless of the complexity of the stimulus materials (Siebold, 1972). Using three trestle-type structures of varying degrees of complexity, Gramza, Corush and Ellis (1972) found

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that children tended to move to the more elaborate of the structures first and to spend more time on it over all. In another applied study, Scholtz and Ellis (1975) examined the interplay of preference for objects or peers resulting from children's opportunity to interact in both simple and complex play settings. Two groups of four and five-year-olds had play sessions in a high complexity play setting involving climbing trestles, ladders, a slide, a balance beam and other gym equipment and two other groups had play sessions in a similar but less elaborate setting. The complex setting was found to elicit more interaction with the apparatus than the simpler setting, and preference for interaction with the apparatus declined sharply with familiarity. In the lower complexity setting there was a consistent pattern of more peer interaction than there was in the more elaborate setting. Lacking in these studies, however, was an examination of the quality of peer interaction and play.

Spatial and Social Density

Inquiry into the effects of crowding has produced several empirical studies of children's interaction patterns in conditions of spatial density--involving same sized groups in spaces of differing sizes, or social density--involving differences in group size in the same sized space. Hutt and Vaizey (1966) using a sample of five brain damaged, five autistic, and five "normal" children in a hospital playroom setting found that the normal subjects exhibited more aggression in groups larger than 12, while the level of aggression for the brain damaged children increased significantly when the group size reached seven or more. Autistic subjects were observed to withdraw and showed negligible aggression with increase in group size. P. L. McGrew (1970) studying preschool age children in a nursery school type setting, found that social factors seem to have an impact on the behavior of children under conditions of both social and spatial density. When the number of children in a given area was increased by increasing the size of the population there was no impact on the physical proximity levels used by the children. A reduction of 20% in the space available, however, did increase proximity during play. The importance of social self-regulation was also found by Loo (1972) in a study of 60 four- and five-year-olds under two density conditions. Contrary to Hutt and Vaizey's findings, there were fewer aggressive acts in the high density condition than in the low density condition. Boys were seen to interact with significantly more children than girls and showed significantly more aggression in the low density condition. The level of aggression in girls did not significantly differ in the two conditions. The question seems to remain open as to whether children are more aggressive under social or spatial density, or whether increasing population sizes cause children to withdraw or avoid each other, or forces them to be involved in more positive interactions.

Ecological Studies

Studies in which children's behaviors were observed under naturally occuring conditions in the preschool cannot be classified as simply as experimental studies. Three such studies touch on areas of concern in this investigation.

Silcock (1970) using specimen records made of children in preschool settings found that there was almost no evidence of group goals shared by several children. Younger children tended to use more non-verbal methods in their communication both with other children and adults. Older children used more verbal contacts, even in aggression. Most conflicts initiated by children were peer centered and more than one-third of all contacts with opposite sex peers were discordant. Silcock did not examine differential patterns of interaction within the different settings in the classroom.

The impact of setting on behavior was investigated by Shure (1963) by taking time samples in three general categories of behaviors of 14 children during their play in five traditional nursery school areas: art, book corner, doll corner, game area, block corner. Shure found differential use patterns by sex, with the block corner being the most popular area, particularly with boys, and the art area the second most popular, and most highly favored by the girls. The doll corner was seen as eliciting the greatest amount of complex social interaction, with more solitary play found in the block area and the less populated book corner.

Berk (1971) in a study of children's reactions to environmental constraints in four different nursery schools found that conflicts with environmental factors were frequent, and that the majority of these conflicts were events in which one child's pursuit of his goals is interfered with by another child. Teacher expectations proved to be the second most frequent source of environmental pressure on the children, and the interference of "clutter crowds"--the physical obstacle of many other children--the third most frequent source. However, the children studied tended to either show no overt response or to comply when faced with conflict situations. Persistence was the third most frequent type of response to conflict. Physical attack, crying and threatening were found to be very infrequent responses to environmental pressures.

In Summary

1. Complex play structures appear to be preferred over simpler structures.

2. Children tend to interact with the apparatus more than with peers when the play structure is complex, but this preference declines with familiarity. There was a consistent pattern of more interaction with peers when a simpler play structure was used.

3. Under experimental conditions greater social or spatial density may either cause an increase in aggressive behavior or may result in accommodation to the presence of others.

4. Under natural observation aggressive responses to conflict were found to be rare, although most conflicts appear to be with peers (as opposed to conflicts with the physical requirements of the environment, the teacher, etc.).

5. Males and females appear to have differential use patterns of different areas in the nursery school when observed under natural conditions.

A Methodological Note

The experimental studies cited vary in their level of control. The studies of play apparatus by Smith and Ellis and by Gramza, Corush and Ellis were conducted in rooms set up with the specified play materials, with no other options open to the children studied at the time that they were observed. The variables measured were carefully limited; the child was either involved with a peer or an object, or not, or scored for usage time periods. Scoring in this type of study is frequently done using photographs taken from cameras preset at four- or five-second intervals. The studies of spatial and social density tended to use more naturalistic settings, with the possible exception of Hutt and Vaizey's study. In each of these experiments the children were observed in a preschool type setting, but had no control over the density level of their play area. In both of the studies that examined social interaction, the levels of interaction were broadly and generally defined. For instance, there was no differentiation between physical and verbal aggression.

In the ecological studies, natural settings were used, and multiple types of interaction patterns were examined. However, it was obviously not possible, using more complex systems, to record all of the behaviors of all of the children in a given area using small time units. A score for individual children (sampling) or a score for the group as a whole could be achieved. This type of scoring may fail to pick up the varieties of interaction taking place in a given area at a specific time period, since multiple interaction patterns may be found. Eifermann (1970) in a study of unsupervised play, found that play group size tended to increase with age. Six- and seven-year-olds played most frequently in groups of two to three and were found in groups larger than eight less than 10% of the time. It could be expected then, that whenever more than five kindergarten children were present in an area more than one set of interactions would be taking place.

This paper reports a pilot study in which: (a) an attempt is made to obtain simultaneous records of complex behavior categories for all children present in a specific area of the classroom; (b) the level of experimental control is similar to thelevel of control that the teacher would have in the manipulation of the normal classroom environment. Children were free to enter and leave the area, and the area may well reflect the spill over of relationships and interaction patterns established in other classroom settings.

Methods

Eight twenty-minute segments of "worktime" in a university laboratory school kindergarten were videotaped on eight consecutive school days (two four-day weeks). Taping was done in one corner of the room only. The area used was approximately seven feet by ten feet, bounded by walls on two sides, forming a corner, with low bookshelves forming a boundary between the area and the main part of the room. One end was open for entrance and exit. For the first four days a large multi-level box-like structure was placed in the area. For the final four days poles and panels of fabric which could be fit onto the structure in a variety of

ways were added to the area. The area had been empty for the school day preceding the videotaping. During the entire time of videotaping children had the chance to choose the area as an initial activity, with many other options available to them, or to enter the area later after they finished involvement with their first choice. Options included the usual kindergarten activities--block corner, housekeeping area, easels, a snack table with free access--and special activities directed by three adults, ranging from cooking and woodworking to directed cut and paste activities or math games.

Ten categories of behavior were defined and eight raters were trained in their use. The categories were as follows:

1. Motor Play--the child is moving, climbing, exploring and using his body and manipulating objects for the physical satisfaction of the acts themselves. This category does not include motor behavior accompanying other forms of activity or play.
   Examples: climbing; jumping on and off the structure; holding on to the structure's poles and rocking them back and forth.

2. Imaginative Play--play in which the activity, the persons involved in the activity, or the materials used in the activity are interpreted as something other than they are.
   Examples: "I'm Godzilla, grr." "You be the baby shark." "This is our boat."

3. Aggressive Play--play in which the activity involves real or imagined threats to damage another's person or property.
   Examples: "Watch out, I'm the gorilla."' pretending a person is a prisoner and taking them by the arm to jail; arm swinging as though about to hit another person, although the punch is "pulled."

4. Common Theme with Another Child--shares the same notion of the topic or focus of the activity underway with at least one other child.

5. Neutral Category--the child is present but none of the above categories apply. Or, the child is obscured and there is no way to ascertain his activities.

6. Socialized speech--any of the below:

   a. adapted information--specific information imparted to a given audience. It differs from dual and collective monologues in that the child is successful in making his hearer listen and is able to influence his hearer's actions, or to get a response from the hearer relating to the information given.
   b. criticism
   c. commands, requests, and threats
   d. questions and answers (on a related topic)

7. Theme Setting--the child being observed defines an activity that should take place or a focus for activity or play.
   Examples: "This is our boat." "Let's be dinosaurs." "Put those poles up."

8. Egocentric Speech--any of the below:

   a. repetition--the child repeats words and syllables for the pleasure of talking, with no thought of talking to anyone, nor even at times of saying words that will make sense
   b. monologue--the child talks to himself as though he were thinking aloud; he does not address anyone
   c. dual or collective monologue--the presence of another child or person serves as the stimulus for the child's speech. But while the speaker expects everyone to be listening he takes no interest in what the other person is saying; tends to talk only about himself or his interests; does not seem to expect a response from the other person.

9. Gatekeeping--statements which limit the usage of space and materials, or involvement in a particular activity, to only certain individuals. Any statements of inclusion or exclusion.
Examples: "No girls allowed." "You can't come in."

10. Physical Aggression--touching, hitting, pushing, blocking, or any other deliberate use of physical force on another child. Requires actual physical contact and the objections or retaliation of the party being aggressed upon.

Raters were assigned to each child present on a specific day's taped record. Each behavior exhibited by a given child during a five-second interval was recorded by the assigned rater. Interval times were signaled by a bell-tone recorded onto the videotape so that all raters were recording simultaneously. This technique also allowed the tape to be played a second time if there were more children present than the number of raters available. Raters were trained using a sample tape, with the two experimenters, their assistant, and the trainees simultaneously rating the same child. One rater with an extremely high level of agreement with the principle experimenter was selected as the expert and used as a basis for judging reliability. Reliability was determined using Scott's (1955) coefficient, which controls for chance agreement between observers. In general, an r of .60 is considered acceptable and an r of .70 highly positive. At peak functioning the raters reached an average r of .768, with a range of .64 to .91. Brief training sessions were held before each of the three rating sessions, and continued until all raters reached a satisfactory reliability level.

Because of the amount of data generated by this rating technique, behavior categories were recorded directly onto ten-place examination forms which could be scored by computer. Categories were assigned arbitrary physical positions on the exam forms and a program was written to translate these positions, so that behaviors were quantified for both the entire group of children present at a given time and for individual children over time.

Results

Time Spent in the Area

One behavior immediately apparent, appeared to be the result of the

use of a natural nursery school setting. This behavior, "staying away," was not systematically recorded, but was highly obvious. Four girls and one boy in the class never entered the area while it was being taped during morning work time. Of the remaining children, 22 entered the area at some time during the taping sessions, 9 girls and 13 boys. Two of the girls entered the area too late and too briefly for measurement, stepping in during the period that the other children were leaving at the end of work time. This left a total of 20 children whose behavior was recorded during the taping session. Not only did far fewer girls use the area than boys, the girls who did enter the area were present less often than the boys. The mean number of five-second intervals present for females was 342 (5.7 minutes), and for males 602 (10.3 minutes). There was great variability in time present among all subjects, male and female. Time spent in the area by individuals over the eight days ranged from five seconds to 22 minutes (see Table 1).

It is difficult to determine any clear pattern over the eight days in terms of time spent in the area by the children. On the first day no children entered the area in the first two-thirds of work time. (The area had been completely empty on the previous school day and only one child entered it, running in and running out briefly.) Otherwise, there seemed to be high consistent use levels each four-day period, with a slight drop in usage the final day of each period--days four and eight (see Table 2).

Behavior Patterns

Despite adult concerns about aggression with the minimal supervision in the area, actual physical aggression accounted for a very small percentage of behavior, less than 3% at its highest level. The same pattern was true for the verbal aggression category "gatekeeping." Virtually no egocentric speech was recorded for this group of children (Table 2). These three categories were dropped from further analysis.

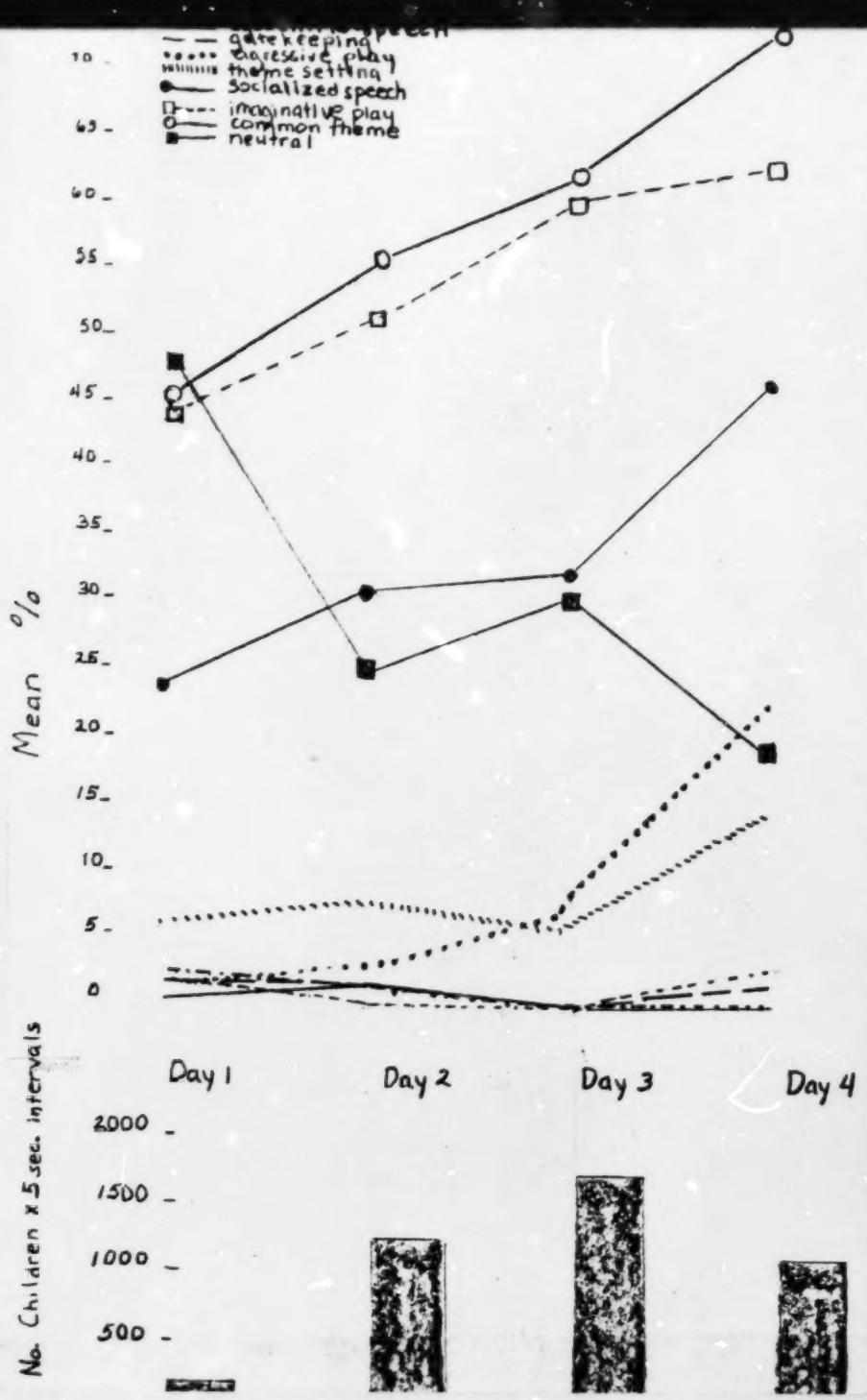
The impact of condition on behavior was examined using the 16 children, 5 girls and 11 boys, who were present under both apparatus conditions, simple and complex. The children served as their own control group. A three-way repeated measures analysis of variance was performed, using the total percentage of each of seven behaviors for the 16 subjects under each of the two apparatus conditions. As could be expected, there was a highly significant difference among the levels of the various behaviors ($p < .0001$). The two different conditions, as such, did not reach a significant difference. However, there was significant interaction between behavior and condition ($p = .02$). (See Table 3)

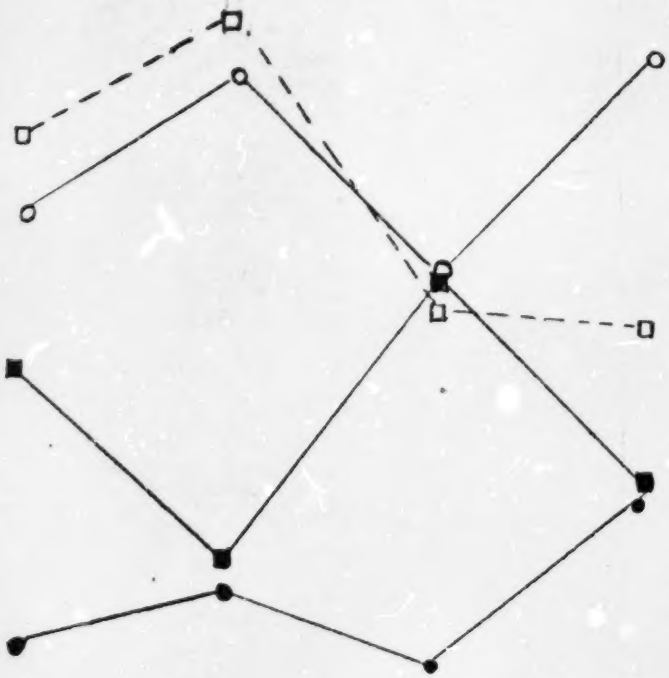
Daily usage of the area during work time and the impact of usage on behavior, as well as the interrelationships of the seven different behaviors, were examined. To determine usage levels a "child x time period" figure was computed (similar to "man-hours") for each day. The usage level proved to be significantly correlated with the level of imaginative play ($r = .76$, $p < .05$), sharing of a common theme with another child ($r = .73$, $p < .05$), and "neutral" or onlooker behaviors ($r = .78$, $p < .05$).

Table 1

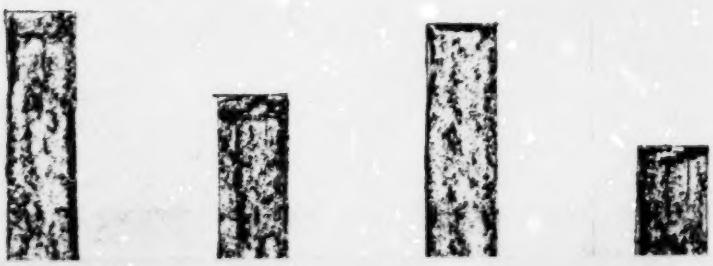
Daily Usage Levels in the Area
(Figures represent 5-second intervals)

Subject No.	Day 1 F	Day 1 M	Day 2 F	Day 2 M	Day 3 F	Day 3 M	Day 4 F	Day 4 M	Day 5 F	Day 5 M	Day 6 F	Day 6 M	Day 7 F	Day 7 M	Day 8 F	Day 8 M
1	23				195				137						27	
2	37								123							
3		40													62	
4											88					
5		30		53		250						24				185
6	27		13		188		6		190		230		247		87	
7				4										3		
8				233		89		203		78		229		247		236
9				140						147		67		221		47
10				153		245		162		104		71		100		116
11				221		97		58		149		32		156		
12				15				252		210		162		200		
13				175		72		169		217		95		198		
14				132		226		254				222				229
15				97		7				221		120		245		
16		27		10		17										
17					29											
18					75				224				234			
19					228		10		120							
20	87	1 98	13	1233	715	1003	16	1098	794	1126	318	1022	481	1370	114	875
Totals	185		1246		1718		1114		1920		1340		1851		989	

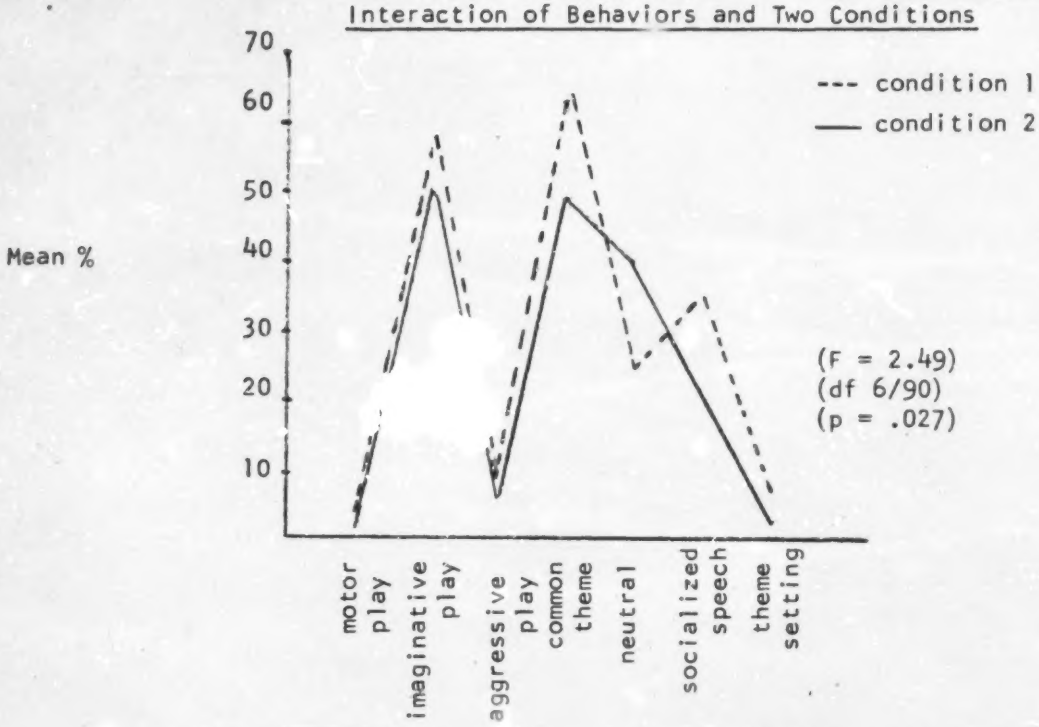

gatekeeping
aggressive play
theme setting
socialized speech
imaginative play
common theme
neutral
Mean %
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
Day 1
Day 2
Day 3
Day 4
No. Children x 5 sec. intervals
2000
1500
1000
500



Day 5 Day 6 Day 7 Day 8



Interaction of Behaviors and Two Conditions



Not surprisingly, there were strong correlations between the levels of sharing of a common theme and socialized speech ($r = .75$, $p < .05$), and the use of socialized speech and theme setting ($r = .75$, $p < .05$). The level of aggressiveplay was not significantly correlated with the usage level of the area, nor with the sharing of a common theme (see Table 4).

Table 4

Correlations: Density with Behaviors
Behaviors with Behaviors

	density level	motor play	imaginative play	aggressive play	common theme	neutral	socialized speech
motor play	.365						
imaginative play	*.760	-.196					
aggressive play	.360	-.034	.410				
common theme	*.728	-.322	**.902	.408			
neutral	*.777	.696	.332	-.139	.208		
socialized speech	.219	-.598	.520	.385	*.748	-.333	
theme setting	-.177	-.480	.095	.296	.278	-.573	*.748

* $p < .05$ (df = 6)
** $p < .01$

Sex Difference

The small number of girls who appeared in the area under both the simple and complex play apparatus conditions limited the analysis of sex differences in behavior. Perhaps the most significant finding is the simple fact that fewer girls entered the area than boys and the fact that girls spent less time in the area. However, as an exploratory measure, five males were chosen at random from the 11 male subjects and a multiple regression was run on the behaviors of this small sample and the behaviors of the five females, using sex as the dependent variable. Sex of the child could not be predicted by the level of any of the behaviors examined. Only the level of imaginative play approached a significant relationship with the sex of the child--higher for males than females ($r = .625$, with an r of .632 required for $p = .05$).

Table 5

Behavior as a Predictor of Sex of Child
(negative = female, positive = male)

-.383	.625	.281	.274	.0	.081	.051
motor play	imaginative play	aggressive play	common theme	neutral	socialized speech	theme setting

$r = .632$ needed for $p < .05$ ($df = 8$)

In a stepwise regression with sex as the dependent variable the same relationship was observed, with only the level of imaginative play approaching significance. (As an indicator for future research, the order of variables in the regression was--in descending order: imaginative play, socialized speech, common theme, theme setting, aggressive play, neutral.)

Discussion

A review of the literature relevant to the impact of physical and social factors on free play in the preschool indicates that children appear to prefer complex play structures to simple play structures. The children given free choice of movement in the kindergarten classroom observed showed no clear preference pattern. With the exception of the first day of observation, when the structure was "discovered" late in the session, use patterns, both in terms of the numbers of children present and the time periods that children were present, flucuated, but remained at fairly high levels. Each of the eight days observed appeared to be a case in itself, rather than representative of the nature of the play structure. A test of the significance of the means of usage levels for the two conditions was deemed inappropriate due to the low level of use on the first day of taping; an artifact of the classroom milieu.

A study by Scholtz and Ellis (1975) provided evidence that preschool children may tend to interact with the apparatus more than with peers when the play structure is complex, but that this preference declines

with familiarity. If the children interacted more with the apparatus when it was more complex it might be expected that an increase in motor play would be found in the second four days of observation. While the level of motor play was quite low under both conditions, there was a small increase from a mean of .07% in the first four days to a mean of 2.1% in the second four days. It might also be expected that the level of motor play would be higher at the beginning of the first four days and then decrease and that categories representing peer interaction would be lower and increase. Table 2 illustrates a trend in increase in peer interaction, but the level of motor play remains so low that it is difficult to ascertain any pattern. If children interacted more with peers in the less complex condition it might also be expected that the levels of sharing a common play theme with another child and of socialized speech would be greater in the first four days of observation than in the second four days. These two categories were higher during the first four days, but so were all theother categories of behavior except motor play and the "neutral" category, which included "onlooker" behaviors. Differences were not sufficient, however, to provide a significant level of variance between the two conditions. A larger sample, using more children in several different preschools and kindergartens may provide more positive results in differentiating between the two conditions. It is also possible that the "complex" condition, involving the addition of manipulable poles and panels of fabric was not complex enough to effect a significant difference in behavior. Scholtz and Ellis found that children maintained a high consistent level of peer interaction when dealing with the less complex play structure.

The social density of the area--fluctuations in the amount of children present in the space--appeared to have little relationship to aggressive play, or to statements of possession and exclusion (gatekeeping), and to physical aggression or threats of physical aggression. The small percentage of the latter two behaviors would bear out the notion that normal children are fighting with each other less often than the worried teacher expects. The experimenters, on initial viewing of the videotapes, felt that there was considerable aggression in the latter part of the second week. This concern was already expressed by the teacher during the taping session. Evidently we were getting a reading of adult tolerance for aggression in children. This points up again how much adults tend to focus on small amounts of negative behaviors despite high ongoing levels of positive interaction. The low level of real conflict (3 to 4%) would be in accordance with Berk's (1971) finding that in the natural preschool setting actual aggression is infrequent. Social density proved to be significantly correlated with the level of imaginative play and with the sharing of common play themes with other children. This raises the possibility that more intense levels of exposure to many peers provided children with more opportunities to share ideas and play themes, and increased, rather than decreased, many positive qualities in their play. At the same time, there may also be more withdrawal from action, since there was also a significant increase in the "neutral" category, which reflects a lack of active interaction with other children. Loo (1972) reports a similar trend, finding more solitary play in a high density condition than in a low density condition. Since he found that aggression and

solitary play were negatively correlated, he raised the question whether high density affects one of these variables, which in turn affects the other, and if so, which variable is more directly affected by high density. While Loo's definitions differ somewhat from the categories used in this study, we found, as reported, the following levels of relationship: aggressive play with density level, $r = .360$; aggressive play with neutral, $r = -.139$; neutral with density level, $r = .777$, $p < .05$. It appears that the usage level of the area may cause children to withdraw or hold back from interaction, and that there is no strong relationship between density level and aggressive play. Logically, a child who is not interacting with others is not fighting with them. It is possible, then, that children opt to avoid conflict so that an increase in the social density of an area does not cause an increase in the average level of aggression.

While differential behavior patterns between boys and girls might be expected, there were no significant differences in the types of behavior exhibited by the girls who played in the area. However, there was an obvious difference in usage levels with four of the girls in the classroom never entering the area during the observation sessions and two entering the area only as it emptied. The girls who did enter the area were there, on an average, less often than the boys. This raises the questions whether the girls who played in the area were more similar to the males in their play patterns, and therefore more comfortable playing in the area, or whether these girls represented a play group and attracted each other to the area, while the ones who remained away were involved in another friendship group.

In general, it appears that trends in the free play behaviors of children of kindergarten age are somewhat more exaggerated in studies conducted under experimental conditions than in this and other studies conducted under more naturalistic observational conditions. There may be less aggression found in the normal preschool than experimental studies would indicate. Also, children may use other options to deal with the problem of social density when these options are available. The question of whether sex determines behavior patterns remains open, with the possibility of multiple underlying factors accounting for observed differences between boys and girls. It should be noted, however, that the findings of this study apply only to those children observed, and cannot be generalized to other populations, and because of the small size of the sample and lack of controls for myriad variables in the kindergarten program.

References

Barker, R.G. Explorations in ecological psychology. American Psychologist, 1965, 20(1), 1-14.

Berk, L. Fffects of variations in the nursery school setting on environmental constraints and children's modes of adaptation. Child Development, 1971, 42, 839-869.

Berlyne, D.C. Conflict, arousal and curiosity. New York: McGraw-Hill, 1960.

Cantor, G.N. Children's like-dislike ratings of familiarized and unfamiliarized visual stimuli. Journal of Experimental Child Psychology , 1968, 6, 651-657.

Cantor, G.H., & Kubose, S.K. Preschool children's rating of familiarized and nonfamiliarized visual stimuli. Journal of Experimental Child Psychology, 1969, 8, 74-81.

Eiferman, R. Level of children's play as expressed in group size. British Journal of Educational Psychology, 1970, 40, 161-170.

Gordon, I.J., & Jester, R.E. Techniques of observing teaching in early childhood and outcomes of particular procedures. In Travers, M.N. (Ed.), Second handbook of research in teaching. Chicago: Rand McNally, 1973.

Gramza, A., Corush, J., & Ellis, M. Children's play on trestles of differing complexity: A study of play equipment design. Journal of Leisure Research, 1972, 4, 303-311.

Hutt, C., & Vaizey, J. Differential effects of group density on social behavior. Nature, 1966, 209, 3, 1371-1372.

Loo, C.M. The effects of spatial density on the social behavior of children. Journal of Applied Social Psychology, 1972, 2, 4, 372-381.

McGrew, P.L. Social and spatial density effects on spacing behavior in preschool children. Journal of Child Psychology and Psychiatry, 1970, 11, 197-205.

Medley, D.M., & Mitzel, H.E. Measuring classroom behavior by systematic observation. In Gage, M.L. (Ed.), Handbook of research in teaching. Chicago: Rand McNally, 1963.

Rosenshine, B., & Furst, N. The use of direct observation in the study of teaching. In Travers, M.N. (Ed.), Second handbook of research in teaching. Chicago: Rand McNally, 1973.

Scholtz, G., & Ellis, M. Repeated exposure to objects and peers in a play setting. Journal of Experimental Child Psychology, 1975, 19, 448-455.

Scott, W.A. Reliability of content analysis: The case of nominal coding. The Public Opinion Quarterly, 1955, 19, 3, 321-325.

Shure, M.B. Psychological ecology of a nursery school. Child Development, 1963, 34, 979-992.

Siebold, J.R. Children's rating responses as related to amount and recency of stimulus familiarization and stimulus complexity. Journal of Experimental Child Psychology, 1972, 14, 257-264.

Silcock, A. A study of kindergarten interactions. In W.J. Campbell (Ed.), Scholars in context: The effects of environments on learning. New York: Wiley, 1970.